LASER FOCUS/ **ELECTRO-OPTICS INDEX:** Sept. 1983-Dec. 1984*

CATEGORIES

COMPANIES AND MARKETS

- Electro-Optics
- **Fiberoptics**
- General
- Laser

CONFERENCES **ELECTRO-OPTICS**

- Detectors and sensors
- Displays
- Imaging Quantum electronics research
- Radiometry and photometry
- Systems

FIBEROPTICS AND LIGHTWAVE

COMMUNICATIONS

- · Fibers, cables, and light guides
- General
- Instrumentation
- Research
- Sources and detectors
- Systems

INSTITUTIONS AND FACILITIES

LASER APPLICATIONS

- Biomedical
- Chemistry and spectroscopy
- Fusion
- Holography
- Material processing
- Measurement and inspection
- Military
- Optical data storage
- Reprographics

LASEDS

- Components and instrumentation
- Design and operation
- Research

OPTICS

- Applications
- Components and materials
- Design and fabrication
- Research

COMPANIES AND MARKETS

Electro-Optics

German laser/e-o consumption drops while exports grow, Sept. 83, p. 166.

Display market to grow at 22% yearly, Oct. 83, p. 130. Next stage of Starlab, Nov. 83, p. 62.

Commercial market for free-space links, Dec. 83, p. 116. Laser and electro-optic highlights, Jan. 84, p. 12. E-O products 1983, Jan. 84, p. 55.

Japanese optoelectronic industry, Feb. 84, p. 104.

PMT technology development in Japan, Feb. 84, p. 132.

Noncontact temperature measurement seen as limited to specialty applications, Mar. 84, p. 82.

Japan seen as leader in integrated optics, Apr. 84, p. 110. U.S. electro-optic inspection market, June 84, p. 149. Optical disk market burgeoning, July 84, p. 104. Image processing markets examined, July 84, p. 104.

Toshiba claims lead in LED production, Aug. 84, p. 118. The founding of Electro-Optics magazine, Robert Compton, Oct. 84, p. 68.

Military electro-optics to grow through 1990, Ron Tillen, Oct. 84, p. 196.

Optoelectronics in Japan, Akira Morita and Yoshimichi Yamashita, Oct. 84, p. 206.

Fiberoptics

Study cites competitive industry in Japan, Sept. 83, p. 90. Long-range forecast of fiberoptic markets, Sept. 83, p. 92. The fiberoptic industry in 1983: A status report, David A. Duke, Sept. 83, p. 155.

Fiberoptics market predicted to 1990, Jan. 84, p. 44.

TAT-8 contracts announced, Jan. 84, p. 44.

Public laser-and fiberoptics-related companies: how they

fared in 1983, Jan. 84, p. 118. The government market for fiberoptic systems, James R.

Kanely and Lawrence R. Kilty, Apr. 84, p. 93.
Fiberoptics becomes an industry, J. Kessler, Sept. 84, p. 14.
Market trends in optical fiber products, David Charlton, Sept.

Telecommunication network trends for optical fiber technology, S.D. Personick, Sept. 84, p. 104.

Opto '84 Conference shows diversity and depth of French and other European companies, Sept. 84, p. 114.

Fiberoptics hot field for experienced eng., Sept. 84, p. 118. Optical communications market seen rising 150% by 1988,

Kaptron to tap European market, Oct. 84, p. 218.

Lasers and electro-optics: a natural affinity, Sept. 83, p. 10. Expanding opportunities in R&D and high-tech marketing, Philip Speser, Feb. 84, p. 14.

Closing the technician gap, Apr. 84, p. 19. U.S. optics industry breaks trade deficit pattern, Apr. 84,

The future of optical components, P. Kenrick, June 84, p. 14. Export Administration Act reauthorization, Philip Speser, June 84, p. 16.

Mergers: wave of the future for optics industry, July 84, p. 14. W. German laser/e-o consumption rebounds, Oct. 84, p. 218. Small high-tech companies are key factor in R&D tax credit, Philip Speser, Nov. 84, p. 12.

*This index includes all contributed articles and major news stories published from September 1983 to December 1984. The items are arranged by category and in order by month of issue.-Ed.

LASER FOCUS/ **ELECTRO-OPTICS INDEX:** Sept. 1983-Dec. 1984*

CATEGORIES

COMPANIES AND MARKETS

- Electro-Optics
- **Fiberoptics**
- General
- Laser

CONFERENCES **ELECTRO-OPTICS**

- Detectors and sensors
- Displays
- Imaging Quantum electronics research
- Radiometry and photometry
- Systems

FIBEROPTICS AND LIGHTWAVE

COMMUNICATIONS

- · Fibers, cables, and light guides
- General
- Instrumentation
- Research
- Sources and detectors
- Systems

INSTITUTIONS AND FACILITIES

LASER APPLICATIONS

- Biomedical
- Chemistry and spectroscopy
- Fusion
- Holography
- Material processing
- Measurement and inspection
- Military
- Optical data storage
- Reprographics

LASEDS

- Components and instrumentation
- Design and operation
- Research

OPTICS

- Applications
- Components and materials
- Design and fabrication
- Research

COMPANIES AND MARKETS

Electro-Optics

German laser/e-o consumption drops while exports grow, Sept. 83, p. 166.

Display market to grow at 22% yearly, Oct. 83, p. 130. Next stage of Starlab, Nov. 83, p. 62.

Commercial market for free-space links, Dec. 83, p. 116. Laser and electro-optic highlights, Jan. 84, p. 12. E-O products 1983, Jan. 84, p. 55.

Japanese optoelectronic industry, Feb. 84, p. 104.

PMT technology development in Japan, Feb. 84, p. 132.

Noncontact temperature measurement seen as limited to specialty applications, Mar. 84, p. 82.

Japan seen as leader in integrated optics, Apr. 84, p. 110. U.S. electro-optic inspection market, June 84, p. 149. Optical disk market burgeoning, July 84, p. 104. Image processing markets examined, July 84, p. 104.

Toshiba claims lead in LED production, Aug. 84, p. 118. The founding of Electro-Optics magazine, Robert Compton, Oct. 84, p. 68.

Military electro-optics to grow through 1990, Ron Tillen, Oct. 84, p. 196.

Optoelectronics in Japan, Akira Morita and Yoshimichi Yamashita, Oct. 84, p. 206.

Fiberoptics

Study cites competitive industry in Japan, Sept. 83, p. 90. Long-range forecast of fiberoptic markets, Sept. 83, p. 92. The fiberoptic industry in 1983: A status report, David A. Duke, Sept. 83, p. 155.

Fiberoptics market predicted to 1990, Jan. 84, p. 44.

TAT-8 contracts announced, Jan. 84, p. 44.

Public laser-and fiberoptics-related companies: how they

fared in 1983, Jan. 84, p. 118. The government market for fiberoptic systems, James R.

Kanely and Lawrence R. Kilty, Apr. 84, p. 93.
Fiberoptics becomes an industry, J. Kessler, Sept. 84, p. 14.
Market trends in optical fiber products, David Charlton, Sept.

Telecommunication network trends for optical fiber technology, S.D. Personick, Sept. 84, p. 104.

Opto '84 Conference shows diversity and depth of French and other European companies, Sept. 84, p. 114.

Fiberoptics hot field for experienced eng., Sept. 84, p. 118. Optical communications market seen rising 150% by 1988,

Kaptron to tap European market, Oct. 84, p. 218.

Lasers and electro-optics: a natural affinity, Sept. 83, p. 10. Expanding opportunities in R&D and high-tech marketing, Philip Speser, Feb. 84, p. 14.

Closing the technician gap, Apr. 84, p. 19. U.S. optics industry breaks trade deficit pattern, Apr. 84,

The future of optical components, P. Kenrick, June 84, p. 14. Export Administration Act reauthorization, Philip Speser, June 84, p. 16.

Mergers: wave of the future for optics industry, July 84, p. 14. W. German laser/e-o consumption rebounds, Oct. 84, p. 218. Small high-tech companies are key factor in R&D tax credit, Philip Speser, Nov. 84, p. 12.

*This index includes all contributed articles and major news stories published from September 1983 to December 1984. The items are arranged by category and in order by month of issue.-Ed.

What the fight against waste, fraud and abuse means for defense contractors, Philip Speser, Dec. 84, p. 16.

German Laser/E-O consumption drops while exports grow, Sep. 83, p. 166.

Hughes to reenter RF waveguide CO2 commercial market, Sept. 83, p. 166.

\$9.4 million loss and suite eclipse record-breaking sales at Spectra-Physics, Oct. 83, p. 130.

Key issues for industry acceptance of lasers, David A. Belforte, Nov. 83, p. 10.

Advances and outlook in industrial laser systems 1983, Nov. 83, p. 89.

Gould partners sue Quantel, Quantronix and Compulaser, Dec. 83, p. 6.

Laser manufacturing and applications in W. Germany, Dec. 83, p. 56.

NCDRH tightens ophthalmic YAG installations; Meditec and AMO/Laser Photonics sales stall, Dec. 83, p. 116. Commercial laser sales grow 25%, Jan. 84, p. 8. Laser and electro-optic highlights, Jan. 84, p. 12.

1984 laser technical achievement awards, Jan. 84, p. 50. Advances in commercial lasers, Jan. 84, p. 74.

Public laser-and fiberoptics-related companies: how they fared in 1983, Jan. 84, p. 118.

Industrial laser applications fostered in Japan, Feb. 84, p. 18. Prospects for laser surface treatment expand, Feb. 84, p. 28. Laser Power Corp. acquires Herron Optical, Feb. 84, p. 10. Economic Review: strong laser sales growth in 1983 expected to continue through 1984, Feb. 84, p. 100.

High-energy laser funding remains strong in fiscal 1985 budget, Mar. 84, p. 6.

Spectra pegs laser systems market, Mar. 84, p. 82. Coherent and Spectra in patent dispute, Apr. 84, p. 6. Advances in commercial lasers, Apr. 84, p. 74.

Lumonics acquires LIS; establishes French distributor, May

84, p. 10. Coherent & GE agree on joint venture; Coherent & Quantronix strike marketing agreement, May 84, p. 10. Burleigh and Spectra-Physics enter joint marketing effort,

May 84, p. 10. DTI study examines markets for lasers in graphic arts, May 84, p. 112.

U.S. military laser market in five years, July 84, p. 102. R&D opportunities in the strategic defense initiative, Philip

Speser and Kathryn Mancuso, Aug. 84, p. 14. Mitsubishi's experience with laser diodes, Saburo Takamiya and Kuniki Tamari, Aug. 84, p. 84.

Cooper Lasersonics acquires Plasma Kinetics, Sept. 84, p. 10. U.S. laser laboratory survey: demographics, Lewis Holmes, Sept. 84, p. 72.

Coherent first to receive FDA approval for YAG ophthalmic laser, Sept. 84, p. 118.

New firm launches ultracompact CO2 laser, Oct. 84, p. 10. Reminiscences of Laser Focus in the 1970s, Howard Rausch, Oct. 84, p. 66.

Medical laser sales will surge during next decade, David Schwartz, Oct. 84, p. 100.

Spectra-Physics resolves lawsuits, Nov. 84, p. 101. \$1 billion medical market by 2000, Nov. 84, p. 101. Lumonics: Canadian-based laser company tops another mile-

stone, forecasts continued profitability, Nov. 84, p. 102. Twenty years of commercial lasers, G. Klauminzer, Dec. 84, p. 54.

CONFERENCES

CIE meeting considers organizational and technical issues, Sept. 83, p. 6. ICALEO '83: November in Los Angeles, Sept. 83, p. 68.

SPIE Technical Symposium Report, William B. Green, Nov. 83, p. 44.

Lasers and applications down under, Mar. 84, p. 136. Leading researchers point to shortage of QE scientists and

research materials, Apr. 84, p. 16.

SID to hold annual symposium, May 84, p. 40. International Quantum Electronics Conference: preview of technical sessions, May 84, p. 58.

Conference on Lasers and Electro-Optics: preview of technical sessions, May 84, p. 64.

Seminar in Eindhoven reviews industrial laser applications, June 84, p. 34.

Ultrafast meeting introduces new sources and applications, Aug. 84, p. 8.

Maturity brings expansion to IQEC/CLEO, Aug. 84, p. 18. SPIE's 28th Annual Symposium will be truly international, Aug. 84, p. 52.

Conference offers help in marketing to federal agencies, Philip Speser and Kathryn Mancuso, Sept. 84, p. 18. Ultrafast meeting highlights pulsed-laser techniques, Sept.

84, p. 24. FOC/LAN '84 will highlight new products and applications, Sept. 84, p. 48.

Preview of 1984 ICALEO in Boston, November 12-15, Nov.

84, p. 14.
MRS fall meeting to feature energy-beam/solid interactions and laser-assisted semiconductor processing, Nov. 84, p. 22. Electron devices meeting to cover new lasers and detectors, Nov. 84, p. 44.

Preview of January's SPIE critical technology symposium, Dec. 84, p. 24.

ELECTRO-OPTICS

Detectors and sensors

Sandia-designed photodiodes show high resistance to X-rays, Sept. 83, p. 46.

Light-absorbing layer improves Hughes Aircraft photodetector performance..., Sept. 83, p. 52.

Reticon develops a universal multiplexer for IR detectors, Sept. 83, p. 54.

Advantages of obliquely cut pyroelectric crystals for infrared detectors, A. Shaulov, Sept. 83, p. 216. Airborne imaging spectrometer, Nov. 83, p. 40.

Comparing satellite scanning techniques, Fred Schaff, Nov. 83, p. 113.

Lead-salt detectors, Richard Harris, Dec. 83, p. 87. Ultra-high-speed photodiode, S. Y. Wang, Dec. 83, p. 99. Thermal sensors detect air pressure change, Feb. 84, p. 44. Recent advances in high-speed photon detectors, Branko Leskovar, Feb. 84, p. 73. PMT technology development in Japan, Feb. 84, p. 132.

Thermal sensing instruments, H. Kaplan, Mar. 84, p. 57. CCD image sensors and robotic vision, C. M. Boardman, Mar. 84, p. 132.

Review of IR detector technology, A. Tebo, Apr. 84, p. 46. Advances in image sensors, June 84, p. 54.

IR sensor systems built for high-speed fire suppression, July 84, p. 46. IR detector technology: arrays, A. Tebo, July 84, p. 68.

Photodetectors in hostile environments, R. P. Randall, Aug.

Infrared thermography, G. J. Burrer, Oct. 84, p. 164. U.K. pushes ahead in IR detectors, Nov. 84, p. 48. InSb detectors adjusted for use at liquid helium temperatures, Nov. 84, p. 52.

High-speed room-temperature HgCdTe CO₂-laser detectors, Wieslaw Galus and Frederick Perry, Nov. 84, p. 76.

Tektronix offers new liquid crystal color shutter (LCCS) to selected markets, Oct 83, p. 8.

Progress in liquid crystal light valves, W. P. Bleha, Oct 83, p. 110.

Gas-electron-phosphor displays, Nov. 83, p. 56.

Electronically controlled holographic display, Dec. 83, p. 30. British firm develops CRT for dashboard, June 84, p. 52. Thin-film electroluminescent displays advance, Oct. 84, p. 39. Trends in display technology, Gus Carroll, Oct 84, p. 146. Electroluminescent diode incorporates phthalocyanine film,

Dec. 84, p. 44.

Imaging

Thermographic imaging in a harsh environment, John Lester Miller, Sept. 83, p. 138.

Nonlinear processing of thermographic images, Dec. 83, p. 54. Military system monitors volcanic activity, Mar. 84, p. 24. Hughes develops new CRT phosphor, June 84, p. 62.

High-speed video with pulsed copper lasers, Bill Abrahams and Al Mallan, July 84, p. 54.

Femtosecond imaging resolves laser-induced surface melting, Sept. 84, p. 24.

A case study in high-speed digital imaging, Nicholas Bedworth, Sept. 84, p. 60.

Digital image processing: an optimistic assessment, Andrew G. Tescher, Oct 84, p. 139.

Laser-based fluorescence microscopy of living cells, George McGregor, Hans-Georg Kapitza, and Kenneth Jacobson, Nov. 84, p. 84.

Quantum electronics research

Diamond optoelectronic switch developed, Sept. 83, p. 40. Terahertz Opto-electronic measurements, Oct. 83, p. 50. Symposium on multilayer techniques, Oct. 83, p. 62. Fluence and intensity effects in multiple IR photon absorp-

tion, Mar. 84, p. 20. Photorefractive crystals operate at near-IR wavelengths,

June 84, p. 22.

Optical bistability meeting points to future applications, S. Desmond Smith and Andy Walker, Aug. 84, p. 18. Directions and needs of future quantum-electronics research and development, M. Bass and E. Garmire, Oct. 84, p. 76.

Optical processing research making significant advancements, David Casasent, Oct. 84, p. 149.

Radiometry and photometry

CO2: An inverse greenhouse gas?, Oct. 83, p. 74. Radiometry and laser processing, Nov. 83, p. 14.
Multiband balloon-borne radiometer (BAMM IIA) report, Dec. 83, p. 46.

DARPA observatory gains IR radiometer, Dec. 83, p. 48. Theory and applications of integrating sphere technology, D.

J. Lovell, May 84, p. 86. Infrared thermography aids welding, June 84, p. 58. Standards for calibration of optical radiation measurement systems, William E. Schneider and David G. Goebel, Sept. 84, p. 82.

Trends in optical radiation measurements, William E. Schneider, Oct. 84, p. 166.

Light measurement technology moves to the production line, Ken Miller, Dec. 84, p. 80.

Real-time compensation of atmospheric turbulence by nonlinear phase conjugation demonstrated, Sept. 83, p. 14. 160-kW arc lamp delivered to NASA, Sept. 83, p. 50. Scanned photodiode array measures steel rods, Oct 83, p. 72. Optical computing: the coming revolution in optical signal processing, H. John Caulfield, John A. Neff, and William T. Rhodes, Nov. 83, p. 100.

Optical telescope confirms the fourth gravitational lens system with IR and visible detection, Feb. 84, p. 10. Holographic detection system controls laser pump-rotor bal-

ancing, Mar. 84, p. 18.

Satellite spectrometer will measure atmospheric constituents, Apr. 84, p. 8.

E-O sampling measures fast electrical signals with resolution less than 0.5 ps, May 84, p. 12.

The infrared astronomical satellite, May 84, p. 46. NASA space programs in infrared astronomy, Nancy W. Boggess, June 84, p. 116.

E-O A/D converter provides 4-bit resolution at 109 sample/s, June 84, p. 12.

Near-field microscopy breaks optical resolution barriers, Sept. 84, p. 12.

Optical fiber tests laser rangefinders, Sept. 84, p. 40. Lasers and electro-optics in space, E. David Hinkley and Mark Herring, Oct 84, p. 126.

Vision systems: closing the loop around manufacturing, Richard Hubach, Oct 84, p. 162.

Electro-optics in German defense systems, M. Hartl, Oct. 84, p. 216.

Military laser and electro-optic technolgy in the United Kingdom, Dr. V. G. Roper, Oct. 84, p. 210. Digital speckle-pattern interferometry improves non-destruc-

tive testing, Nov. 84, p. 40.

Retroreflector monitors positional stability of solar array experiment, Nov. 84, p. 54.

Australians to build instrument package for Starlab telescope, Nov. 84, p. 56.

The evolution of electro-optics in defense applications, David H. Pollock, Dec. 84, p. 10.

FIBEROPTICS AND LIGHTWAVE COMMUNICATIONS

Fibers, cables, and light guides

Kilowatts of peak laser power transmitted through a fiberoptic cable, Sept. 83, p. 88.

Optical nonlinearity in fibers, June 84, p. 77.

Vuman introduces new delivery system for medical lasers, June 84, p. 152.

EIA releases new optical fiber standards, July 84, p. 12. Practical considerations in selecting optical fibers, Mohd Aslami and Charles DeLuca, Aug. 84, p. 110. Construction starts on fiber network, Aug. 84, p. 120.

Optical fiber progress, James E. Goell, Sept. 84, p. 106. AT&T Bell Labs set new lightwave records, Oct. 84, p. 12. British researchers design graded-index single-mode fiber, Oct. 84, p. 46.

Forecast for optical fiber applications in the local access and transport area, S. D. Personick, Oct 84, p. 174.

Gallium arsenide ion-beam etching for integrated optics, Nov. 84, p. 74.

Hard clad silica: a new family of optical fibers, William B. Beck and Malcolm H. Hodge, Dec. 84, p. 90.

General

The fiberoptic industry in 1983: A status report, David A. Duke, Sept. 83, p. 155.

New record for repeaterless fiber transmission, Sept. 83, p. 6. Fibers in display systems, Oct. 83, p. 76.

1280-km system planned for Florida, Oct. 83, p. 80. Britian's Mercury awards contracts, Oct. 83, p. 82. Low-loss single-mode connectors, J. Cook, Oct. 83, p. 123. 161-km repeaterless transmission, Dec. 83, p. 66.

New fiberoptic video installations, Dec. 83, p. 70. KMI conferees discuss fiberoptic prospects and challenges, Jan. 84, p. 10.

Laser safety seen in fiberoptic applications, Apr. 84, p. 42. Fiberoptics patent activity shows rapid growth, Apr. 84, p. 42. The government market for fiberoptic systems, James R. Kanely and Lawrence R. Kilty, Apr. 84, p. 93.

Fiberoptics to monitor contaminants, May 84, p. 54. SPIE conference describes advances in sensors, materials and components, July 84, p. 50.

FOCIS to become FOCCAS?, July 84, p. 52.

Everything you always wanted to know about fiber gryo acronyms, July 84, p. 53.

European fiber review: conferences in England detail advances, Aug. 84, p. 64.

Fiberoptics becomes an industry, J. Kessler, Sept. 84, p. 14. Market trends in optical fiber products, David Charlton, Sept. 84, p. 98.

Telecommunication network trends for optical fiber technology, S. D. Personick, Sept. 84, p. 104.

The future for fiberoptics promises integrated services for

consumers, John N. Kessler, Oct. 84, p. 172.
Corporate news announced at FOC/LAN 84, Nov. 84, p. 8. Wavelength-division multiplexing finds use in varied applications, Nov. 84, p. 70.

FOC/LAN conference, Dec. 84, p. 48.

Instrumentation

Progress and challenges in optical time domain reflectometry, Richard M. Osborn, Jan. 84, p. 109.

Fiberoptic gyroscopes, William K. Burns, Feb. 84, p. 83. BNC's light pulse generator, John Yee, Mar. 84, p. 71. HP's optical signal source, Achim Eckert and Christian

Hentschel, Mar. 84, p. 71. Mode field diameter, Ralph A. Westwig, May 84, p. 50. Measuring fiber performance parameters, Peter S. Lovely, May 84, p. 99.

Fault location achieved over 130 km of single-mode fiber, Sept. 84, p. 12.

Diode laser mode analysis with precision piezoelectric instrumentation, Will Houde-Walter and David J. Farrell, Sept. 84, p. 64.

Optical fiber measurements at NBS, C. Smith, Nov. 84, p. 94.

High bandwidth LED transmission in W. Germany, Dec. 83,

OFC conference on high-speed devices, Mar. 84, p. 8. Raman-effect amplifier has a high gain, Mar. 84, p. 42. An in-line optical-fiber attenuator functions by tension adjustment, Apr. 84, p. 44.

Battelle announces program to develop technology for optoelectronic component mass-production, June 84, p. 12. Single-mode fiberoptic switches, June 84, p. 77.

D₂-impregnated fiber Raman laser exhibits stable 1.56-μm output, July 84, p. 10.

Sources and detectors

FET fabricated on InGaAs substrate, Oct. 83, p. 76. High quantum efficiency Si photodetectors provide ps response, Jan. 84, p. 46.

Fiberoptic crack-detection developments, Mar. 84, p. 40. LEDs as semiconductor-junction transceivers, Kenneth C. Fischer, June 84, p. 140.

Multilayer avalanche photodiodes and solid-state photomultipliers, Federico Capasso, July 84, p. 84.

Sources and detectors for optical fiber communication systems, Tran van Muoi, Sept. 84, p. 108. IR heterodyning performed with silver halide optical fibers,

Oct. 84, p. 48.

Components for optical fiber communications, Tran van Muoi, Oct. 84, p. 177.

Systems

All-solid-state device demonstrates high-speed scanning, Sept. 83, p. 28.

SIECOR announces Ethernet, Sept. 83, p. 86.

Fiber system begins operation at Kennedy Space Center, Sept. 83, p. 94.

Low-cost fused coupler used in WDM system, Sept. 83, p. 98. WDMs add channels for existing multimode systems, Fred C. Unterleitner, Nov. 83, p. 68.

IEEE 48 fiber network, Nov. 83, p. 71.

Fiberoptics for multiple-service local area networks, Paul J. Nicholson, Nov. 83, p. 123.

Fiber temperature sensor to be produced, Dec. 83, p. 66. Cost comparisons for long-distance communications, Mar. 84, p. 40.

Single-mode all-fiber Michelson interferometer-for sensing

applications, Apr. 84, p. 42. Switching system uses photo-induced gratings, Sept. 84,

Prospects for undersea fiberoptic cable communications systems, Dilip K. Paul, Oct. 84, p. 175.

INSTITUTIONS AND FACILITIES

World's largest CO2 laser retired, Sept. 83, p. 18. Safety rules worth remembering, Oct. 83, p. 10. Battelle Columbus forms national center for biomedical infrared spectroscopy, Dec. 83, p. 6.

NCTI laser tech. program wins award, Dec. 83, p. 65. DOE Synchrotron Committee lists priorities, Mar. 84, p. 36. Safety amendments would ease rules for low-power laser manufacturers, Mar. 84, p. 84.

Laser and E-O technicians needed-but what type and how many?, John P. Gebert, Apr. 84, p. 10.

Maiman honored for Ruby-laser invention, Apr. 84, p. 18. OSA announces 1984 award winners, Apr. 84, p. 34

IEEE-QEAS Activities in lasers and electro-optics continue to expand, P. W. Smith, May 84, p. 14.

Optics and applied technology lab, May 84, p. 22. ORNL facilitates laser/ion-beam surface treatment research, May 84, p. 33.

Naval electro-optics-a profile of the Optical Sciences Division of the NRL, part I overview; T. G. Giallorenzi and J. M. McMahon, May 84, p. 74.

Laser laboratory survey 1984: U.S. government labs-R&D/

laser budgets, Lewis Holmes, June 84, p. 86. Suggested warning signs and labels for high-intensity light

sources, June 84, p. 198. A profile of the NRL's Optical Sciences Division, Part II, T.G. Giallorenzi and J. M. McMahon, June 84, p. 128

High-tech exports hot issue in Washington, June 84, p. 149. Polytechnic Institute of New York to begin graduate engi-

neering program in imaging, July 84, p. 12.

Amending the NSF charter to increase the engineering emphasis, P. Speser and K. Mancuso, July 84, p. 16. SPIE: thirty years of development and applications of optical and E-O science and engineering, Aug. 84, p. 10.

Medical Laser Manufacturers Association, Sept. 84, p. 118. Optical computing issue first in several years for the IEEE, Oct. 84, p. 36.

SID enjoys growing pains, Oct. 84, p. 36.

LIA: a source of information and education, Robert Goldstein, Nov. 84, p. 10.

A visit to China's laser research institutes, Robert C. Hilborn, Dec. 84, p. 20.

EIA forms fiberoptic division, Dec. 84, p. 52.

LASER APPLICATIONS

Biomedical

Laser burns away artery blockage, Nov. 83, p. 6. Laser-surgery milestone: coronary revascularization in living patients, Dec. 83, p. 8.

Fifth Annual Laser Surgery Conference, Jan. 84, p. 18. Laser/blood-vessel research funding, Mar. 84, p. 16. First medical laser unit in Scotland, Mar. 84, p. 16. Military laser-safety design requirements, Apr. 84, p. 16.

Developments in laser dentistry, Professor J. Melcer and F. Melcer, R. Merard, and R. Hasson, May 84, p. 22. Phototherapy and cardiovascular laser treatment highlighted at Salt Lake City meeting, July 84, p. 10.

Hospital to fly laser experiments in space, July 84, p. 32. Clinical acceptance of laser cardiovascular treatment grows, M. L. Wolbarsht, Aug. 84, p. 38.

Medical YAG and ion lasers debut in Paris, Aug. 84, p. 118. Coherent first to receive FDA approval for YAG ophthalmic laser, Sept. 84, p. 118.

Coburn Optical receives FDA ar al for YAG laser, Oct. 84, p. 10.

Medical laser sales will surge during next decade, David Schwartz, Oct. 84, p. 100.

Laser surgery and medicine in the next decade, Leon Goldman, Oct. 84, p. 104.

YAG surgical system receives FDA approval, Nov. 84, p. 8. Laser-based fluorescence microscopy of living cells, George McGregor, Hans-Georg Kapitza, and Kenneth Jacobson, Nov. 84, p. 84.

FDA approves testing of laserscope, Nov. 84, p. 101.

Chemistry and spectroscopy

CARS detects species behind shock wave, Sept. 83, p. 72. Picosecond transient Raman spectrum measured, D.A. Chernoff, T.L. Gustafson, and D.M. Roberts, Oct. 83, p. 38. Raman gain coefficients for excimer lasers, William K. Bischel, Oct. 83, p. 156.

Breakthrough in laser-based studies of chemical dynamics,

Nov. 83, p. 6. CARS moving into industrial applications, Dec. 83, p. 16. Developments in laser spectroscopy and sources, 1983, Jan. 84, p. 16.

Laser detection of uranium, Feb. 84, p. 30.

Spectrometer jets to jet, Feb. 84, p. 36. Single-particle hybrid laser spectroscopy has environmental-

research potential, Mar. 84, p. 18.

Laser-based analysis of coal gasification streams, Allen Hartford, Jr., Apr. 84, p. 63.

CO2 laser makes ultrafine powders for chemical catalysis, June 84, p. 24.

Supersonic-beam technique in time-of-flight mass spectrometry, D. M. Lubman, June 84, p. 110.

CARS on the road to industrial applications in Europe, Sept. 84, p. 30.

Laser applications in industrial chemical synthesis, R. B. Hall and R. L. Woodin, Oct. 84, p. 112.

Studies document chemical reactions in CVD process, Dec. 84, p. 22. Laser Raman method detects cataracts, Dr. F. J. Purcell, Dec.

Fusion

84, p. 28.

Magnetic targets proposed for ICF reactors, Sept. 83, p. 20. Initial laser and target experiments with the Novette laser: testing new laser, harmonic crystal, and optical designs, John F. Holzrichter, Oct. 83, p. 26.

Special Report: The status of short-wavelength laser fusion, Garry W. Gibbs, Oct. 83, p. 95.

New avenues to success in laser fusion, Heinrich Hora and George H. Miley, Feb. 84, p. 59.

Spectrometer jets to jet, Feb. 84, p. 36. GEKKO XII generates 4×10^{10} neutrons, Mar. 84, p. 6. Antares makes a small star, Apr. 84, p. 14.

Ion-beam symposium reveals progress in laser fusion, May 84, p. 34.

The abort-wavelength laser fusion Greco research facility, Roland Roux, Sept. 84, p. 54.

U.S. inertial fusion program, Gary W. Gibbs, Oct. 84, p. 200.

Holography

Holography works-highlights of a timely exhibition, Apr.

Progress in pictorial holography, T.H. Jeong, Apr. 84, p. 77. Holographic non-destructive testing: aiding mechanical design, Douglas A. Pinnow, July 84, p. 60.

Predictions on the future of holography, H. J. Caulfield, Oct. 84, p. 156.

Optoelectronics in Japan, Akira Morita and Yoshimichi Yamashita, Oct. 84, p. 206.

Material processing

Laser-integrated manufacturing: a proposal to rejuvenate the machine-tool industry, F. D. Seaman and S. Rajagopal, Nov. 83, p. 74.

How General Motors decided to heat-treat with lasers on the assembly line, Edward J. Strong, Nov. 83, p. 172. CO₂ laser chemistry produces ceramic powders, Nancy W.

Stauffer, Dec. 83, p. 22.

Lasers trim capacitors, Jan. 84, p. 34.

Prospects for laser surface treatment expand, Feb. 84, p. 28. Laser writing produces working ICs, Apr. 84, p. 14.

Eddy current monitoring of laser-heated metals: A means of process control?, Terry L. Vanderwert and John P. Wallace, Apr. 84, p. 52.

Industrial lasers show productivity gains, David A. Belforte, July 84, p. 22.

Femtosecond imaging resolves laser-induced surface melting, Sept. 84, p. 24.

Uses of industrial CO₂ lasers in Italy, Dr. Silvio Gualini, Oct. 84, p. 22.

Industrial laser processing is healthy and rapidly growing, David A. Belforte, Oct. 84, p. 86.

Long-term prospects for lasers in microfabrication, Daniel J. Ehrlich, Oct. 84, p. 108.

Nd:YAG slab-geometry lasers impact U.S. steelmaking, Nov. 84, p. 14.

Knowledge of temperature fields and laser surface treatment, Dec. 84, p. 20.

Measurement and inspection

Radiation measurement techniques in magnetic fusion experiments, D. Q. Hwang, Sept. 83, p. 58.

Flame monitoring with lasers: practical applications for developing techniques, Sept. 83, p. 64.

Laser-based satellite wind measurements could save U.S. airlines \$200 million per year, Oct. 83, p. 44. Instantaneous phase-measuring interferometry: principles

and recent advances reported, Oct. 83, p. 66. c is now 299,792,458 m/s, Jan. 84, p. 34.

Laser gyros-now in business aircraft, too, Mar. 84, p. 14. Lasers to be used for quake prediction, Mar. 84, p. 14. CO2 laser equipment helps improve helicopter safety, Aug. 84, p. 34.

Laser ranging contributes to earth rotation study, Sept. 84. p. 28.

Krypton fluoride delivers 3kJ in 400 ns, Oct. 84, p. 10. Laser-induced fluorescence measures fluctuating temperatures, Oct. 84, p. 30.

Lasers and electro-optics in space, E. David Hinkley and Mark Herring, Oct. 84, p. 126.

Some recent developments in eyesafe military laser systems, Anthony M. Johnson, Sept. 83, p. 171.

\$500-M directed energy budget focuses on strategic laser weapons, Jan. 84, p. 8.

Laser weapons acquire strategic focus, Feb. 84, p. 18. The case against laser ABM development-technology and policy views of Hans Bethe, Mar. 84, p.10.

Military laser and electro-optic technology in the United Kingdom, Dr. V. G. Roper, Oct. 84, p. 210.

Military laser activities in France, Gen. B. de St. Germain, Oct. 84, p. 214.

Optical data storage

Critical issues in high-density magnetic and optical data storage, Alan E. Bell, Sept. 83, p. 125.

Optical Disc Conference report, N.B. Nill, Nov. 83, p. 16. Storage Technology claims first digital optical memory: others close behind, Nov. 83, p. 132.

New optical converter facilitates information processing, Feb.

84, p. 42. OSA/IEEE meeting overviews optical data storage technology, Di Chen, Aug. 84, p. 42.

Optical memories: a mass market for lasers, Edward S. Rothchild, Oct. 84, p. 94.

Laser Monetics technology introduced to North America, Nov. 84, p. 34.

Reprographics

Advances in laser and E-O printing technology, Robert A Sprague, John C. Urbach, and Tibor S. Fisli, Oct. 83, p. 101. High-speed video with pulsed copper lasers, Bill Abrahams

and Al Mallan, July 84, p. 54.

Electrophotographic printing leads nonimpact line-printer technologies, Oct. 84, p. 38.

The electronic printing systems market, Edward A. Gavaldon, Oct. 84, p. 120.

LASERS

Components and instrumentation

Advances in boxcar averaging using digital techniques, Seymour Letzter, Dec. 83, p. 77.

How corner reflectors influence output coupling in Cross Porro YAG resonators, M. A. Acharekar, Apr. 84, p. 38.

Design and operation

Tm:YAG laser output found tunable, Sept. 83, p. 16. Nd:YLF setup gives five wavelengths, Sept. 83, p. 32. The slab geometry laser, William B. Jones, Sept. 83, p. 106. Initial laser and target experiments with the Novette Laser, John F. Holzrichter, Oct. 83, p. 26.

Preventing impurities in excimer laser gases, William Hans

and Peter Scott, Oct. 83, p. 86.
Computer-controlled amplitude modulation, Dec. 83, p. 60. HV relays simplify TEA discharge circuit, Dec. 83, p. 64.

Excimer progress continues, Jan. 84, p. 10. Plasma Kinetics triples power of gold laser, Mar. 84, p. 6. Auto maker makes two diode lasers for space, May 84, p. 36. YAG crystal supports ring-laser operation, June 84, p. 22. Diode lasers respond to microwave modulation, Aug. 84, p. 8. The atomic iodine photodissociation laser, J. J. Bannister and

T. A. King, Aug. 84, p. 88. Antiresonant ring dye laser generates fs pulses, Oct. 84, p. 24. Krypton fluoride delivers 3 kJ in 400 ns, Oct. 84, p. 10. New firm launches ultracompact CO₂ laser, Oct. 84, p. 10. Color-center lasers deliver tunable IR pulses, Dec. 84, p. 30.

C³ laser provides scheme for logic operations, Sept. 83, p. 22.
YAP outputs promising in rangefinder test, Sept. 83, p. 34. Emerald—a new gem laser material, Janusz Buchert and Robert R. Alfano, Sept. 83, p. 117.

Recent advances in alexandrite laser technology, J. C.

Walling, Sept. 83, p. 213.

Free-electron lasers shine, Oct. 83, p. 6.
X-ray laser investigations, Oct. 83, p. 14.

Progress in ultrashort-wavelength sources, Oct. 83, p. 16. VUV laser lithography: new developments, Oct. 83, p. 22.

VUV faser lithography: new developments, Oct. 83, p. 22.
VUV FEL proposed, Nov. 83, p. 28.
New lasers described at OSA New Orleans, Dec. 83, p. 8.
New IR laser dyes developed, Dec. 83, p. 16.
Laser photochemistry in Australia, Dec. 83, p. 20.
FEL oscillates at Los Alamos, Feb. 84, p. 8.
Soliton feedback controls laser pulsed Rhodomine output to

Superheated Cesium converts pulsed-Rhodamine output to

widely tunable IR pulses, Mar. 84, p. 6. KTP converts watts of YAG power, Apr. 84, p. 6. Free-electron-maser operation extended, May 84, p. 36. CW mode-locking in Nd:phosphate-glass laser, June 84, p. 10. Fiber compression of red CPM-laser output yields 16-fs pulses, June 84, p. 10.

Researchers generate CW 243-nm radiation, June 84, p. 10. Sum-frequency techniques generates single-frequency mW in the UV, July 84, p. 22.

Hospital to fly laser experiments in space, July 84, p. 32.

C³ technique improves mode control in lead-salt diodes, July 84, p. 34.

Nova laser captures world power title, Aug. 84, p. 6.

Soliton laser yields 50-fs pulses, Aug. 84, p. 6. CLEO/IQEC laser news, Aug. 84, p. 6.

XUV laser meeting takes in the x-ray regime, Aug. 84, p. 40.

Mitsubishi's experience with laser diodes, Saburo Takamiya and Kuniki Tamari, Aug. 84, p. 84.

Research efforts that led to laser development, Joan Lisa Bromberg, Oct. 84, p. 58.

Novette-pumped plasma evidences optical gain at 20.6 nm, Nov. 84, p. 6.

Room-temperature diamond color-center laser emits tunable visible light, Nov. 84, p. 6. A visit to China's laser research institutes, Robert C. Hilborn,

Dec. 84, p. 20. BaTiO2 crystal forces dye-laser color to scan, Dec. 84, p. 24.

Applications

New devices, applications foreseen in nonimaging optics, Jan. 84, p. 36.

Optical processing research making significant advance-ments, David Casasent, Oct. 84, p. 149.

A strong potential for integrated optics applications, Rod C. Alferness, Oct. 84, p. 186.

Components and materials

Large crystal sapphire optics, F. Schmid and C. P. Khattak,

Sept. 83, p. 147. The future of optical components, P.S. Kenrick, June 84,

Organic optical crystal has high SHG efficiency, Aug. 84, p. 8. Trends in optical materials development, Solomon Musikant, Oct. 84, p. 137.

Design and fabrication

Trends in optical fabrication technology, Oct. 83, p. 54. Applications for precision optical machining, Nov. 83, p. 36. Improving optical fabrication, G. M. Sanger, Jan. 84, p. 61. Ultralightweight mirrors, Jay Lipeles, Mar. 84, p. 26. Specifying laser diode optics, David Kuntz, Mar. 84, p. 44. Gradient-index planar microlens, May 84, p. 40. Recent advances in IR optics, June 84, p. 68.

Phase array diode lasers, W. Streifer, R. D. Burnham, T. L. Paoli, and D. R. Scifres, June 84, p. 100.

Workshop highlights need for optical standards, Stephen D.

Fantone, July 84, p. 38.

Commercially available computerized lens design programs, D. J. Lovell, Aug. 84, p. 98.

Aspheres are now in mass production, Sept. 84, p. 10. Polishing mechanisms explored at OSA Optics Conference, R.

H. Doremus, Sept. 84, p. 38.

Lens-design capability for IBM PCs, Oct. 84, p. 36.

Twenty-five years of optical engineering: from intuition to sophistication, R. R. Shannon, Oct. 84, p. 136.

New planar gradient index structures, Sept. 83, p. 44. Ultra-wide-waveband optics design, Dec. 83, p. 44. Ultra-wide-waveband optics design, Dec. 83, p. 42. IR binary optics, Feb. 84, p. 40. KTP converts watts of YAG power, Apr. 84, p. 6. Optics and applied technology lab, May 84, p. 22. Growth in optical-coatings activity, J. H. Apfel and R. I. Seddon, July 84, p. 40.

4